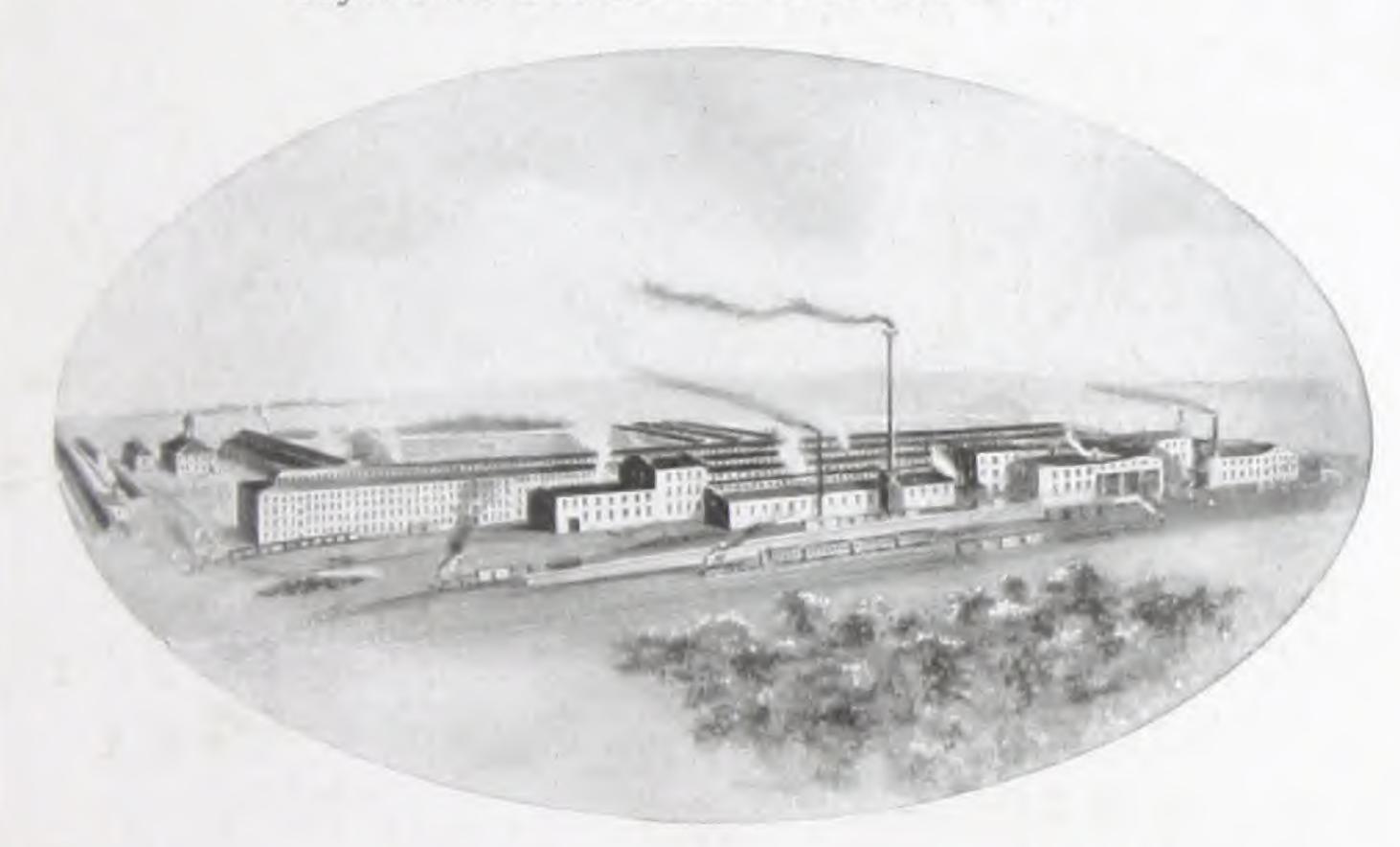
AMBLER ASBESTOS CORRUGATED SHEATHING

Made under Hatschek's reissued United States Letters Patent No. 12,594, Jan. 15, 1907

A Corrugated Sheet Concrete for Roofing purposes, composed of Hydraulic Cement and Asbestos Fibre



NO REPAIRS LASTS FOREVER

NEVER REQUIRES PAINT

NOT AFFECTED BY WEATHER CONDITIONS



KEASBEY & MATTISON COMPANY

FACTORS

AMBLER - PENNA.

Ambler Asbestos Corrugated Sheathing

Employed for Roofing, Siding, Awnings, etc.

For Elevators, Rolling Mills,

Train Sheds, Warehouses, etc.,

Where Fire Protection is desired



Does Not Rust. Indestructible. Never Requires Paint 3/16 in. thickness, 27½ in. wide, 4, 5, 6, 7, 8, 9 and 10 ft. Lengths, Corrugations 2½ in. Pitch

EVERYTHING IN ASBESTOS

SUPPLIED BY

THE

Keasbey & Mattison Company

AMBLER, PENNA.
U. S. A.

Copyright, tott

Fireproof Asbestos Corrugated Sheathing

As most of the articles used in building, which we have come to regard as standard, owe their primary existence to some definite necessity, so does Asbestos Corrugated Sheathing owe its invention to the long felt need of architects, engineers and factory superintendents for a material that would take the place of corrugated sheet iron and steel, as a permanent sheathing.

The corrugated sheet idea of roofing and siding factory buildings, warehouses, train sheds, etc., is a simple, economical and effective manner of treatment for either permanent or portable structures, and the instability of the corrugated sheet steel and iron, obtainable in the market at the present time, has been justly booked upon as an unfortunate drawback to what would otherwise be most effective engineering practice for the sheathing of buildings of many types.

With the advent of Asbestos Corrugated Sheathing the architect can now safely specify, and the manufacturer feel justified in adopting, what has distinctively become known as the "Asbestos Corrugated Sheathing" type of freproof building construction, in roofing and sheathing.

The Asbestos Corrugated Sheathing offers qualifications that no discerning engineer or industrial plant names can afford to overlook, and the class of consulting engineers and manufacturing companies who have endorsed this material by its adoption on their own and their clients' plants is the best recommendation that could be offered by anyone.

The remarkable heat insulating properties of the Asbestos-Coment-Concrete render the Corrugated Asbestos Sheathing an ideal roofing or siding for tropical and semi-tropical localities, which fact has been appreciated by the United States Government in adopting this material for many of its permanent building operations in the Canal Zone and its Insular Possessions.

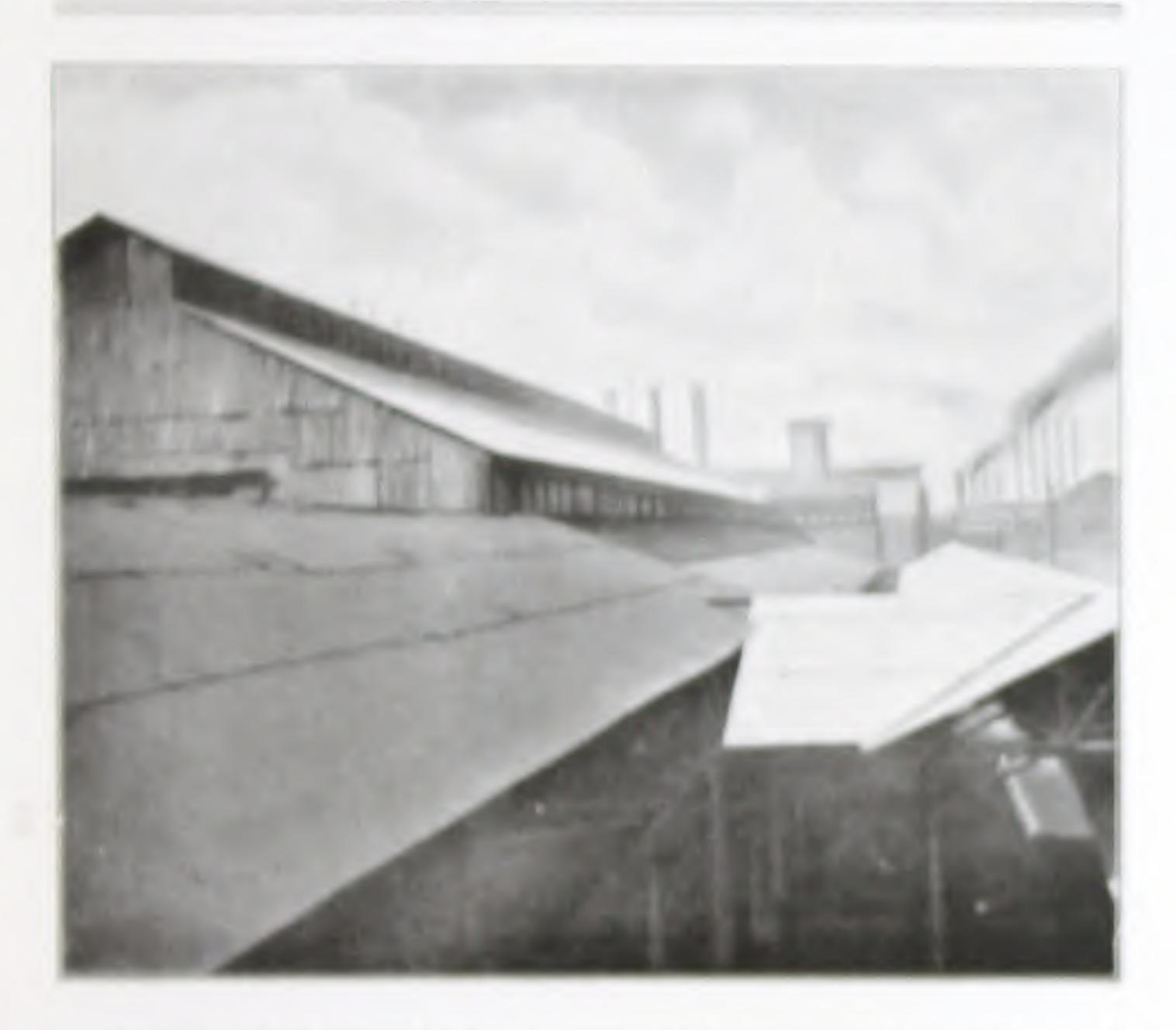
NATURE OF MATERIAL

The Asbestos Corrugated Sheathing, like Asbestos "Century" Shingles, is composed solely of asbestos

fibre and hydraulic or Portland cement in the proportion of about 15 and 85 per cent respectively. This mixture is scientifically combined in the presence of a sufficiently large volume of water to bring the cement into a colloid state, and the product subjected to a pressure of about 650 tons to the square foot. The result is a smooth, even, corrugated sheet, 271/2 inches in width, in even foot lengths from 4 to 10 feet inclusive, the sheets varying from 3/16 to 5/16 inch in thickness, in no part of the sheet running below 3/16 inch, which is the advertised thickness of the material. The corrugations are eleven in number, 21/2 inches wide and I inch deep from top surface to bottom surface of the corrugation. The Asbestos Corrugated Sheathing is comparatively light in weight, from 2.8 to 3 pounds to the square foot, is extremely hard, dense in texture, waterproof, fireproof and possessing in common with all concretes that unique virtue of becoming harder, tougher and more weather-resistant the longer it is exposed to the action of the atmosphere, -indeed it can be said to be practically "everlasting."

The Asbestos Corrugated Sheathing is simply a reinforced concrete in sheet form, the mesh of strong asbestos fibres acting as a reinforcement on which the cement is crystallized, resulting in a material that hardens and becomes more compact under the action of the atmosphere, and no matter how slow this process of hardening may be, its normal condition is one of continuous improvement, it becoming better and better with the lapse of time and exposure to the weather.

IN ALL THE PRINCIPAL CITIES THROUGHOUT THE COUNTRY



The condition of the corrugated iron gable end and roof, illustrated above, is familiar to all superintendents and mill engineers, the corrugated iron roof and sides gradually going from bad to worse in spite of all the painting and patching that must be done at frequent intervals. In this case the engineer has obtained for his client, relief from this constant annoyance and expense by repairing and replacing with Asbestos Corrugated Sheathing. Note the contrast between the foundry roof and sides in the foreground and the Asbestos Corrugated Roofing covering the main foundry roofs in the background and the runs shown on the right of the illustration.

Asbestos Corrugated Sheathing requires practically no upkeep expense, no painting, no replacing of sheets, and the clean, attractive appearance which it lends to the building is also well worthy of thoughtful consideration.

The gaseous fumes generated by many manufacturing processes are absolutely fatal to metal roofs, and even where some of our customers have presented to us conditions that no roofing material can withstand for any great length of time, Asbestos Corrugated Sheathing has lasted many times longer than any other roof covering



Retort House, Providence Gas Co., Providence, R. I.
Roofed with Asbestos Corrugated Sheathing.

which they had previously experimented with, and in this way has more than compensated for any difference in initial cost, considered both from the standpoint of value of material and delay and inconvenience incident to the constant tearing off of worn-out roofing and supplying new. Many foundries and manufacturing plants have

been able to cut their roof repair gangs in half, or even do away with them entirely, by using Asbestos Corrugated Sheathing as the standard roofing for all their buildings.

The re-roofing of a foundry or factory building aside from its expense frequently occasions numerous delays in the manufacturing process, and very often causes entire cessation of the work. This means a loss in production that, while perhaps not always calculable, will in many

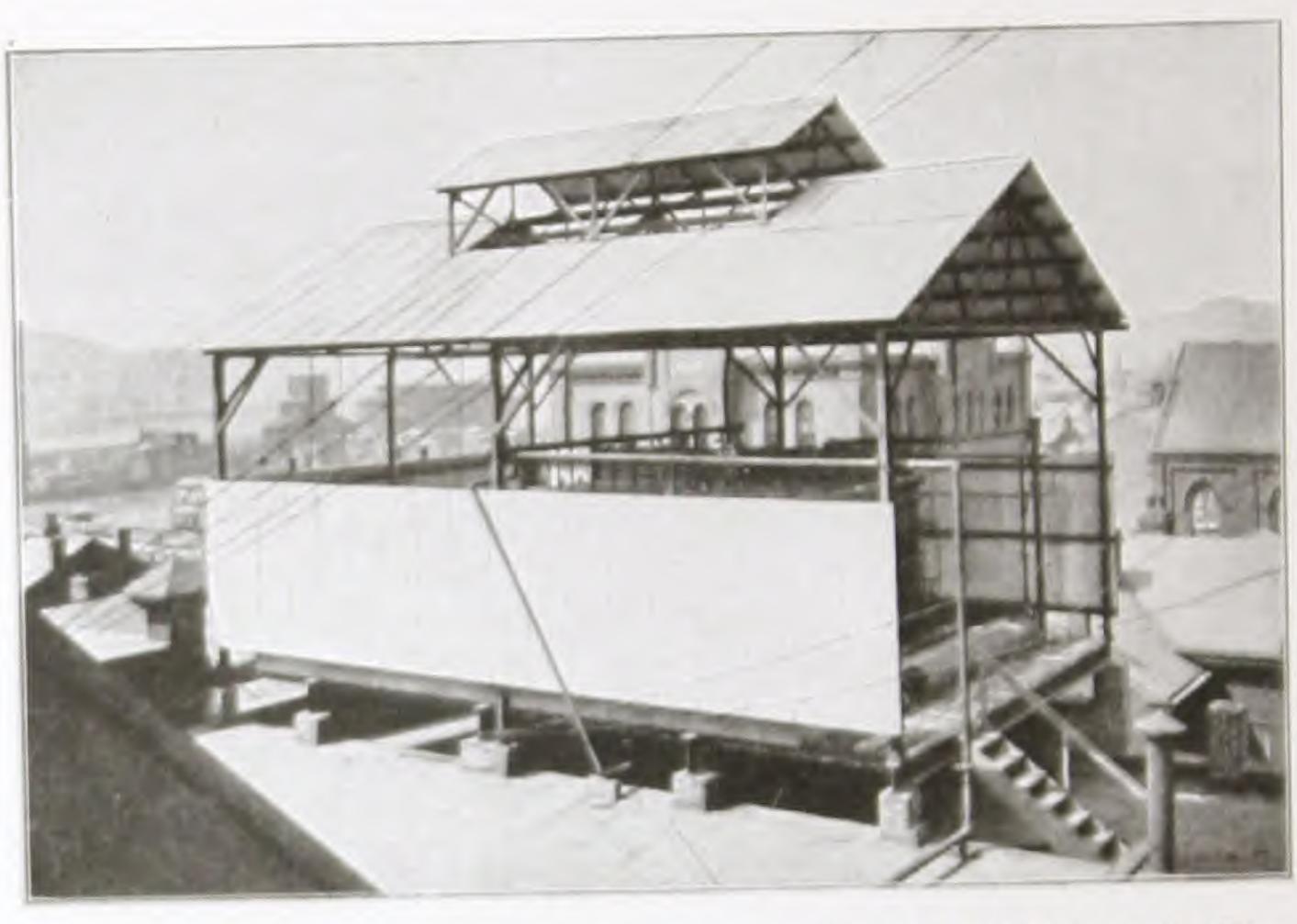


Foundry Building, Pettibone Mulliken Co., Chicago, Ill.
Roofed with Asbestos Corrugated Sheathing.

cases more than pay for the additional first cost in the purchase of Asbestos Corrugated Sheathing.

Asbestos Corrugated Sheathing is an admirable material for the construction of small buildings of a portable or semi-portable nature, such as garages, fireproof oil-houses, tank shelters, bridge tenders' houses, housings of runways, etc. Write us for sketches and suggestions.

SELLING AGENTS IN ALL THE PRINCIPAL CITIES THROUGHOUT THE COUNTRY

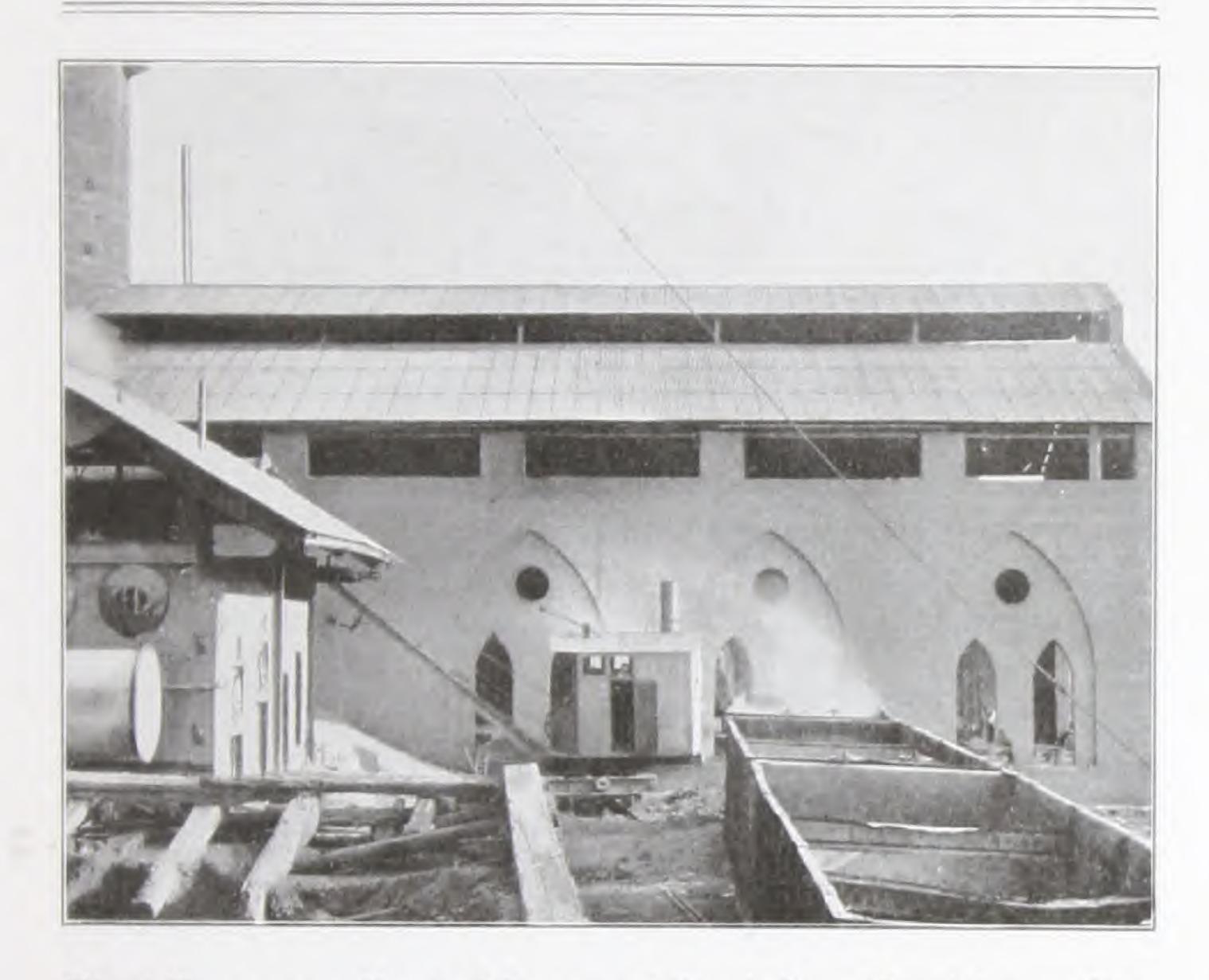


Condenser House of the Pittsburgh Brewing Co., Pittsburgh, Pa.
Roofed and Sheathed with Asbestos Corrugated Sheathing



Fireproof Oil House, Harrison Rolling Mills, Harrisburg, Pa.
Roofed and Sheathed with Asbestos Corrugated Sheathing

SELLING AGENTS IN ALL THE PRINCIPAL CITIES THROUGHOUT THE COUNTRY



Blast Furnaces, Central Iron and Steel Co., Harrisburg, Pa.
Roofed with Asbestos Corrugated Sheathing

Central Iron & Steel Company

PIG IRON, STEEL AND IRON PLATES AND SHEETS

EDW BAILLY Prest

JAS & BAILLY Treas & Gont Mgr
S & BOUDE, Secy
G R BENTLEY, Gent Supt
F J HALL, Sales Agent
F R SMITH Purchasing Agent

Harrisburg, Pa:

Gentlemen: -

House, and is in good condition now.

The corrugated asbestos you furnished for our No. 2 Cast
House roof five (5) years ago has been satisfactory in every respect.

It has outworn three (3) corrugated iron roofs on our No. 1 Cast

Yours very truly,

RVD

CENTRAL IRON & STEEL CO.



Applying Asbestos Corrugated Sheathing to Roof Steel Construction. Purlins 30 inches apart

POINTS ON APPLICATION

With reference to the application of Asbestos Corrugated Sheathing there is little to add beyond the gen-

eral statement that it is applied in practically the same manner as corrugated iron or steel, and the same type of mechanics that usually handle the application of the latter, viz., sheet metal workers, will be found the best and most economical in the long run for large installations of Asbestos Corrugated Sheathing. Their wage is somewhat higher than that paid the ordinary roofer, but this additional wage cost is well warranted.

As in applying corrugated iron, the men should work in pairs—a "riveter" and a "bucker-up" with sometimes an apprentice boy for an assistant.

IN ALL THE PRINCIPAL CITIES THROUGHOUT THE COUNTRY



Asbestos Corrugated Sheathing Applied on Wood Construction



Asbestos Corrugated Sheathing Applied on Steel Construction

The cost of applying Asbestos Corrugated Sheathing will, of course, vary with the type of construction to be handled. If there is much scaffolding to be done, this will have its relative effect upon the average cost "per square" (100 square feet finished), but in general it will run somewhat lower than corrugated iron, being much easier to cut, fit and handle, and the corrugations fitting together smooth and tight with a variation of hardly 1/16 of an inch. We have records of the cost of application ranging ordinarily from \$1.00 to \$2.00 per square, the average being somewhere between these two figures. This cost, of course, depends mainly upon local conditions.

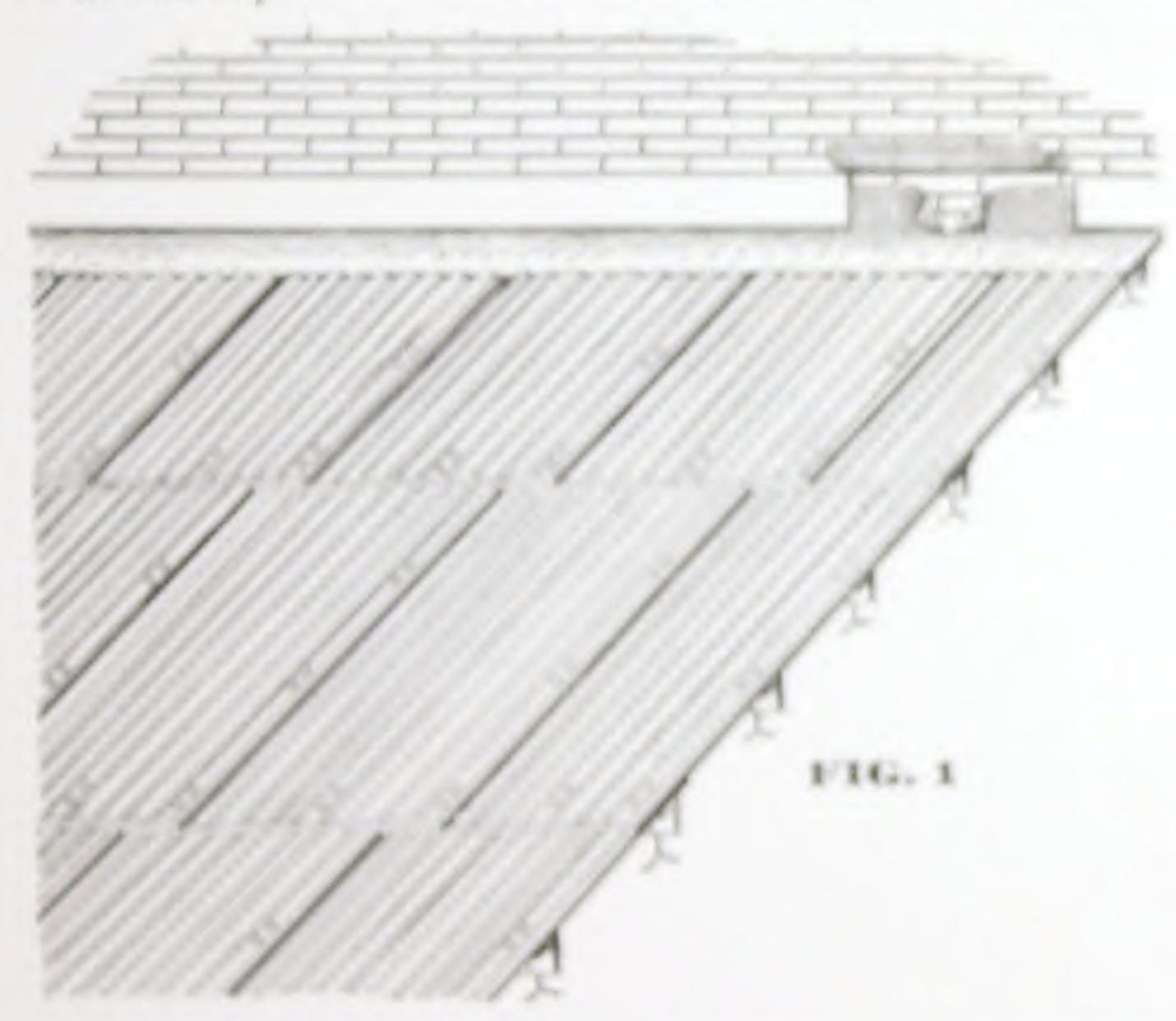
ROOF STRUCTURE

The first point to be looked after, where Asbestos Corrugated Sheathing is to be employed, is the proper arrangement of the superstructure, purlins, etc., for its reception. The material itself will weigh about three pounds to the square foot, which compares with about a 14 or 15 gauge corrugated sheet iron and steel. The roof which it is proposed to cover with the Asbestos Corrugated Sheathing should have not less than one-quarter pitch or six inches rise to the foot. The purlins for its reception should not be spaced more than 30 to 36 inches from center to center.

For roofing purposes the Asbestos Corrugated Sheathing should be given not less than six inches end lap and two corrugations side lap, while for use as siding, one corrugation side lap and not less than four inches end lap will suffice. Of course, in the case of siding, the girts or supports can be spaced much further apart than on the roof,

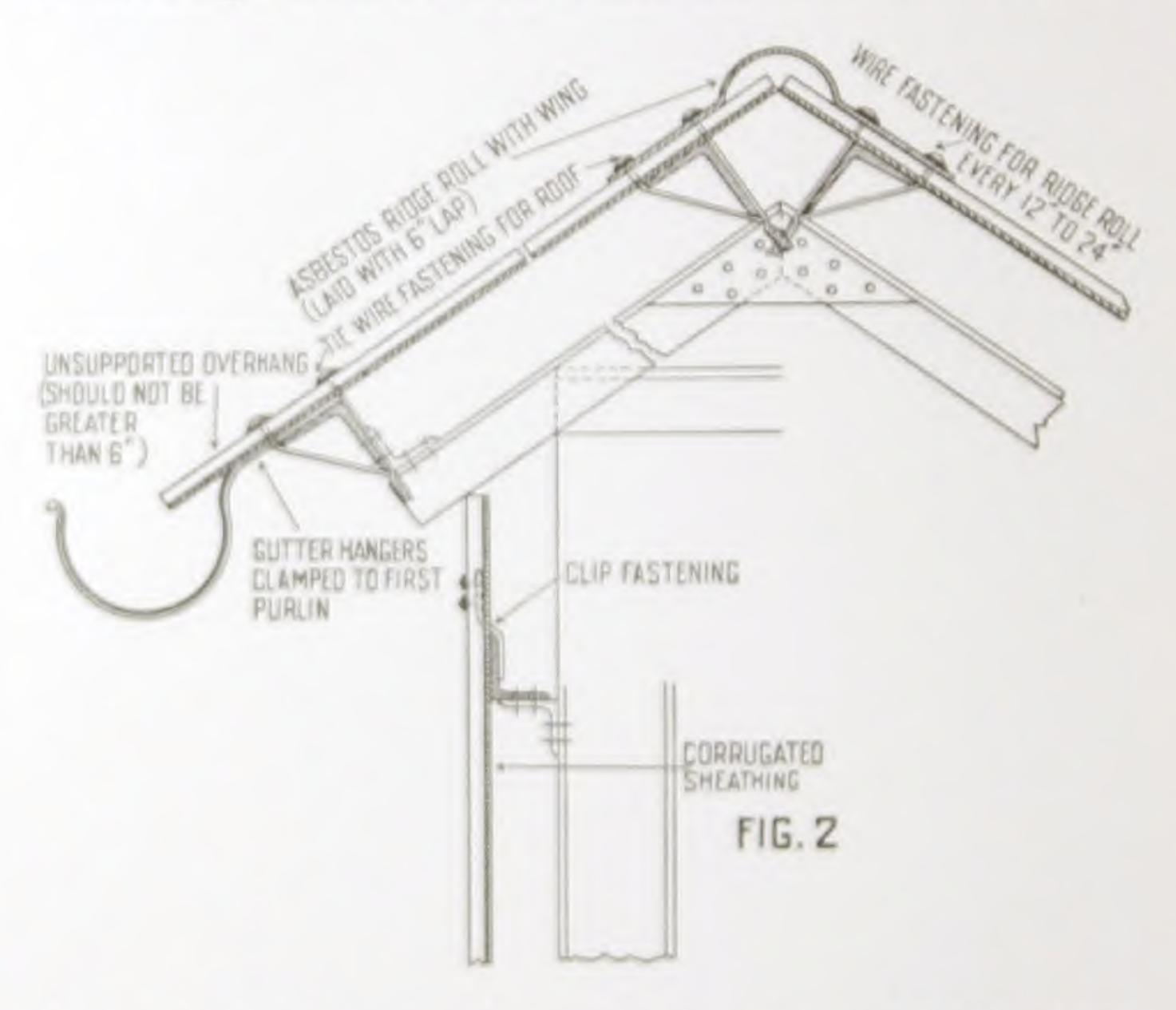
although in all cases the sheet should have at least one or two intermediate supports between end laps.

The sheets should be "staggered" in laying one course above the other, but instead of "staggering" so that the laps of the successive courses occur in the center of the sheet, we would suggest that they occur two corrugations from the lap of the course below, as shown by Fig. 1,

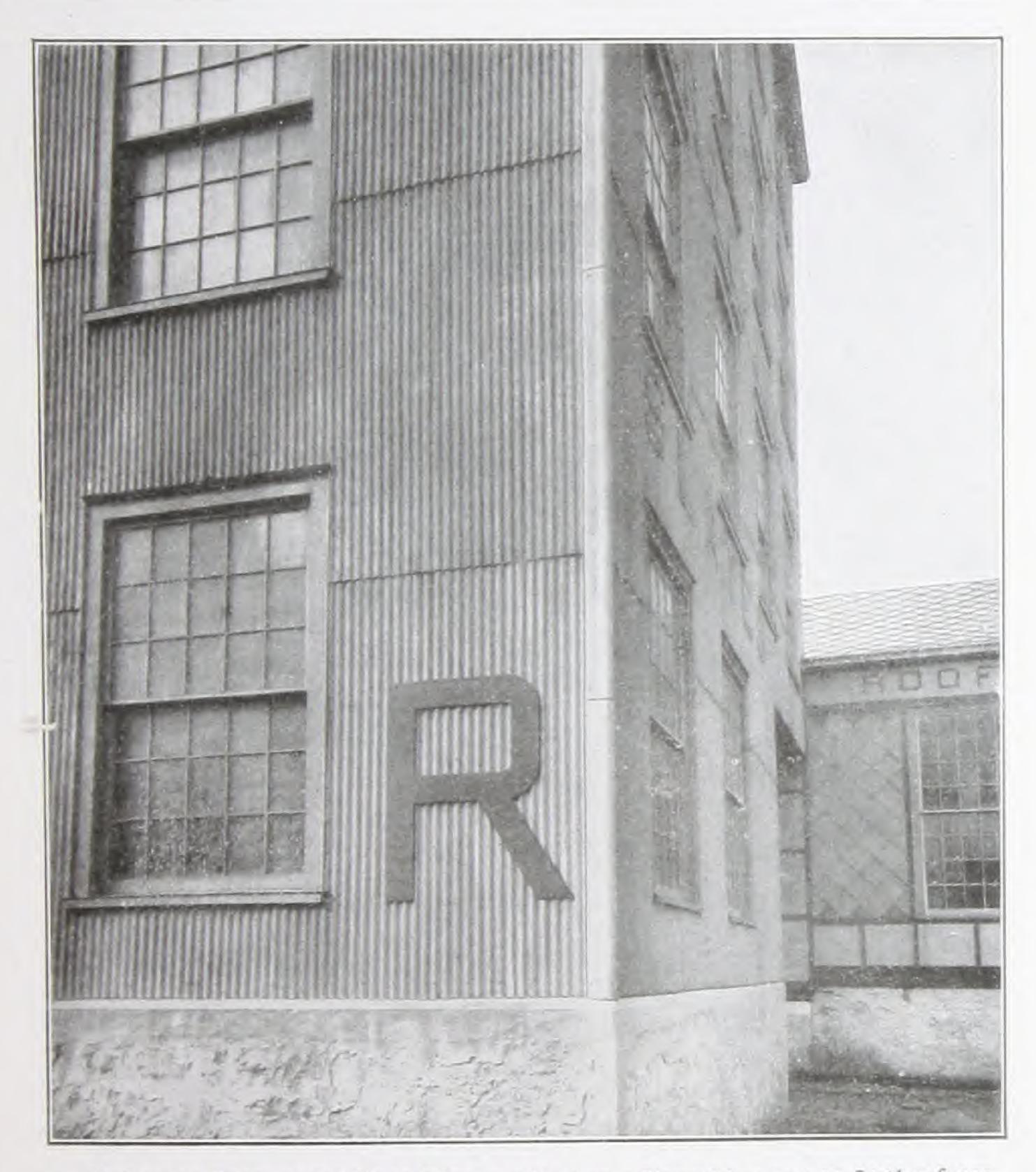


thus obviating the gap which will otherwise occur at the

The first sheet in the second course will be cut down two corrugations, or five inches in width, so that its lapped portion will abut the second sheet in the first course. The first sheet in the third course, to preserve the same arrangement, will have its width reduced four corrugations, or ten inches, and so on up the roof. The material should not be given more than six inches unsupported overhang at the eaves, and if a greater overhang is desired a suitable bracket or other means of support must be furnished. If possible the truss should be so designed that the rake member is allowed to over-



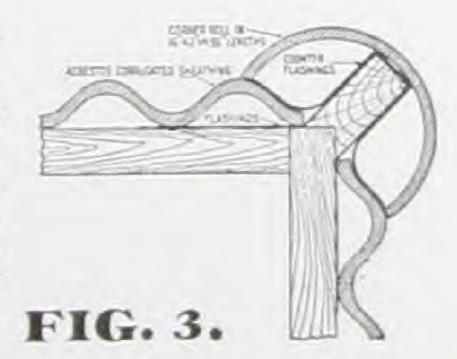
hang the bottom chord member (as shown by the above sketch, Fig. 2), so that the purlins can be continued right down to the eave line, thus affording ample overhang without leaving the ends of the sheets unsupported and in danger of breaking off under heavy snow and ice loads. If the truss is arranged as illustrated above and the purlins run down to the end, the sheets need only be given enough overhang to permit the water to drain properly into the gutter, or if no gutters are used just enough to run the drippings free from the ironwork.



Asbestos Corrugated Sheathing applied as a Sheathing cut to fit the framing around a window.

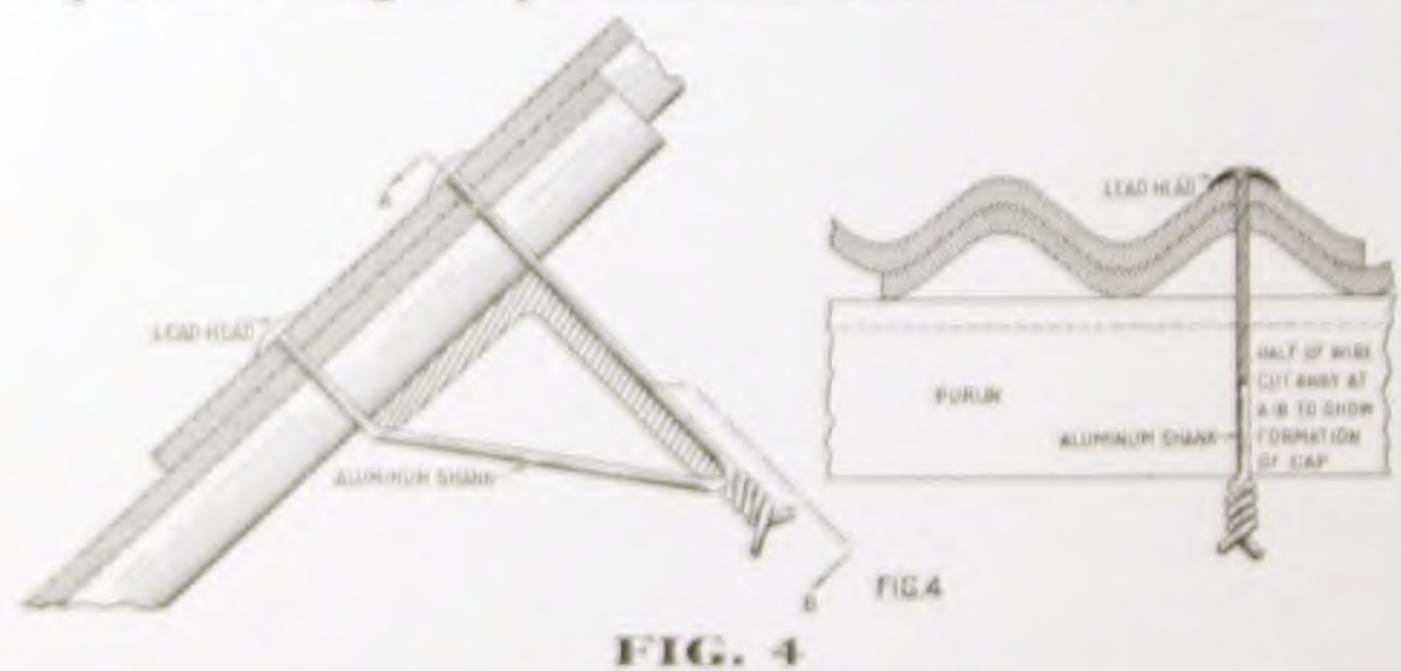
The letter "R" is cut from a slate-colored sheet of flat Asbestos Sheathing and is indestructible under all weather conditions.

Asbestos Ridge Roll used for finishing the corners of buildings on the sides of which the Asbestos Corrugated Sheathing has been applied (Fig. 3).



There are several good methods of fastening Asbestos Corrugated Sheathing to steel construction which follow the same general principles that good roofing practice has standardized for other types of corrugated sheet roofing. Our experience with Asbestos Corrugated Sheathing has taught us that the independent tie-wire fasteners for steel-frame construction give the best satisfaction. This scheme commends itself principally from the fact that the sheets are not rigidly fastened to the superstructure, and a certain amount of freedom for the contraction and expansion of the steel framework is allowed.

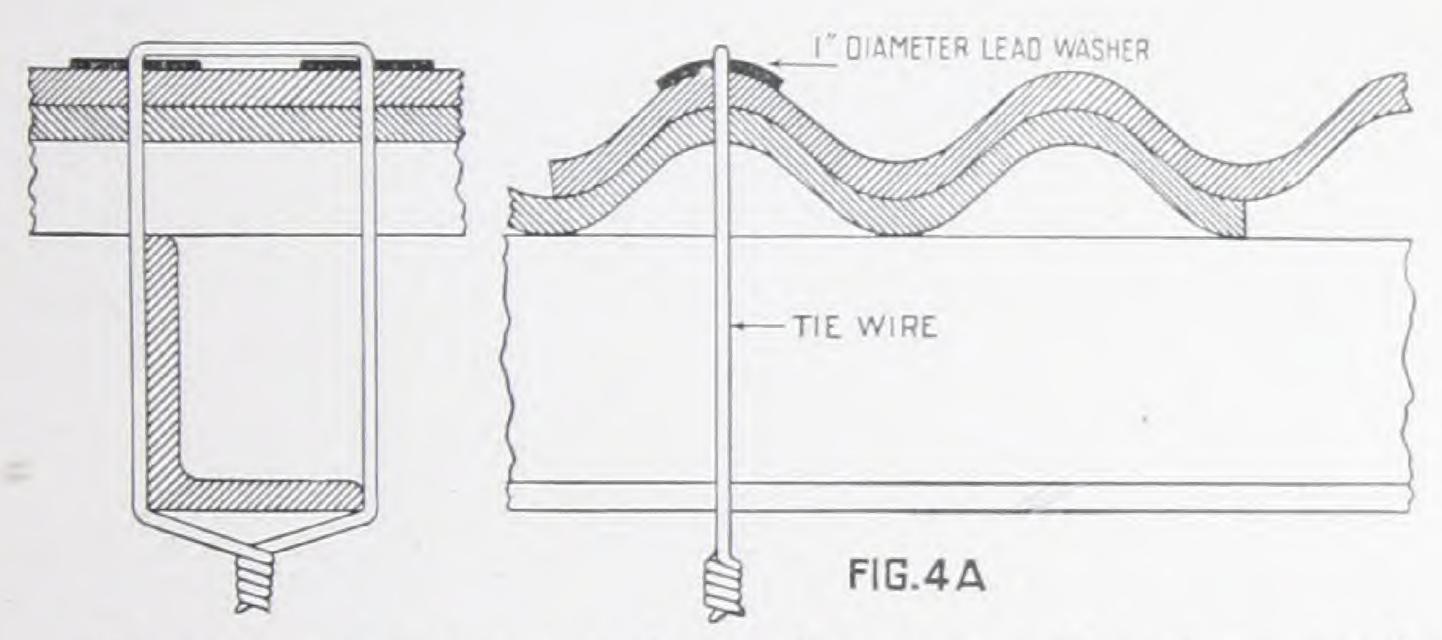
The fastening consists of two independent tie wires with a convex lead head, passing through the sheets at their laps, encircling the purlins, and clinched at the bottom.



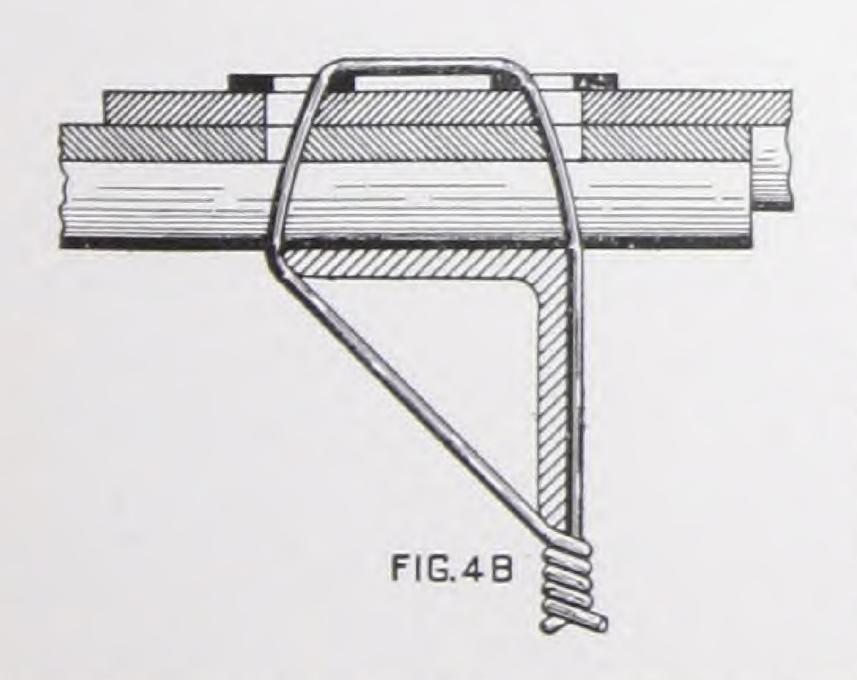
We have recommended the No. 8 Aluminum Wire instead of copper or iron wire in connection with Asbestos Corrugated Sheathing, although engineers can, of course, use their option in specifying whatever kind of wire they wish used.

For the convenience of our customers we carry the independent tie-wire fasteners in stock made from No. 8 gauge aluminum wire, but we do not carry them made

from iron or copper wire, although we can supply the one-inch diameter lead washers used in connection with the ordinary tie-wire fastening. If a copper or iron tie-wire fastening is specified, the loop of wire is simply passed through the sheets at their lap and clinched at the bottom of the purlin, the two incisions in the sheet being protected by one-inch diameter lead washers as shown by Fig. 4-A.



Of course this latter scheme is not considered as good a fastening as the independent tie-wire, as the constant shifting of the sheets has a tendency to saw the holes larger and larger. See Fig. 4-B.



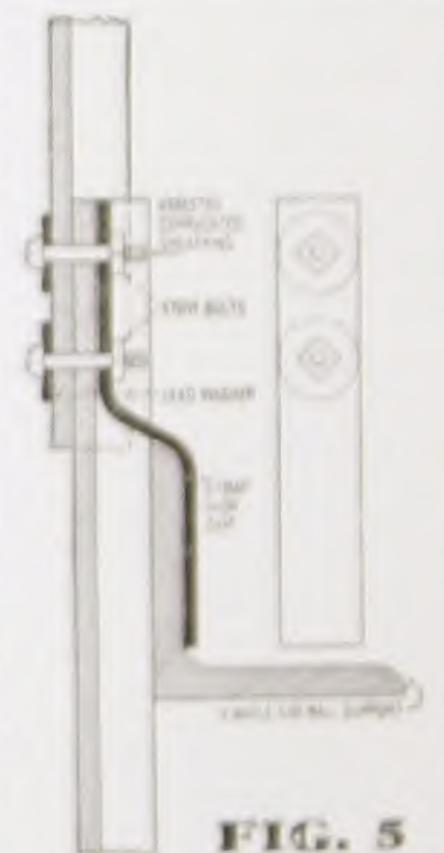
We have thoroughly tested out the aluminum wire for fastening purposes and can recommend it except where there is a predominance of a very strong saline atmosphere, as, for instance, in tropical countries adjacent to or entirely surrounded by the sea,

under which conditions copper should be specified instead, as aluminum is disintegrated by the chemical action of the sodic salt present in the salt-laden atmosphere.

In using either the independent aluminum wire fastenings or the copper or iron wire band fastenings with the lead washers, the mechanic should be cautioned against drilling the holes for the wires too large, and never in the valley of the corrugation. They should in all cases be drilled in the hips or ridges of the corrugation and be barely large enough to work the wire through. Again, the holes should not be any further apart than the width of the upper flange of the purlin, so that there will be no chance of the shifting of the sheets producing a sawing motion in conjunction with the wire fastening,

thus tending to enlarge the holes. It is also well to daub a little white lead on each fastening as applied, and even paint around the head after the wires have been drawn down.

Where the material is applied as a siding we do not recommend the universal use of the tie-wire fastening, as the weight of the material in conjunction with the expansion and contraction of the steel framework may cause the wiresto pull through the sheets. Under such conditions a clip method of fast-



ening (Fig. 5) can be used, of course varying such a fastcuing at certain points where, in the judgment of the constructing engineer, a tie-wire or a band fastening would work to better advantage. When a more or less rigid fastening of this kind is used, even though the clip is not bolted or fastened to the girt or purlin but simply hooked over, care should be taken to make it loose enough to allow for slight shifting.

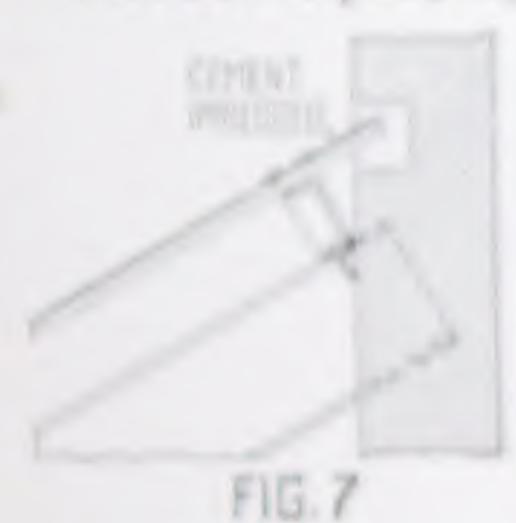
Where the FLASHINGS, ETC. sheets abut against a brick wall, and where they are worked around window and door openings and other details of construction, there are no specific instructions that could be given to cover general cases each proposition must be handled



FIG.5

in a different manner and must be taken core of by the skill and ingenuity of the engineer and the mechanics carrying out his ideas.

The accompanying cuts (Figs. 6 and 7 and Fig. 1 on



pragm r () show alternate mothesis of Hashing on abutting brack or masonry walls, where the sheets can either be carried right into the

masonry and cemented thereto or a regular sheet lead or cupper

flashing used.

Fig. E .- Detail of saw-tooth construction showing one way that the matter of flashings can be satisfacto-

flashingatthe peak of each saw-tooth section and also the method of treatment at the valleys.

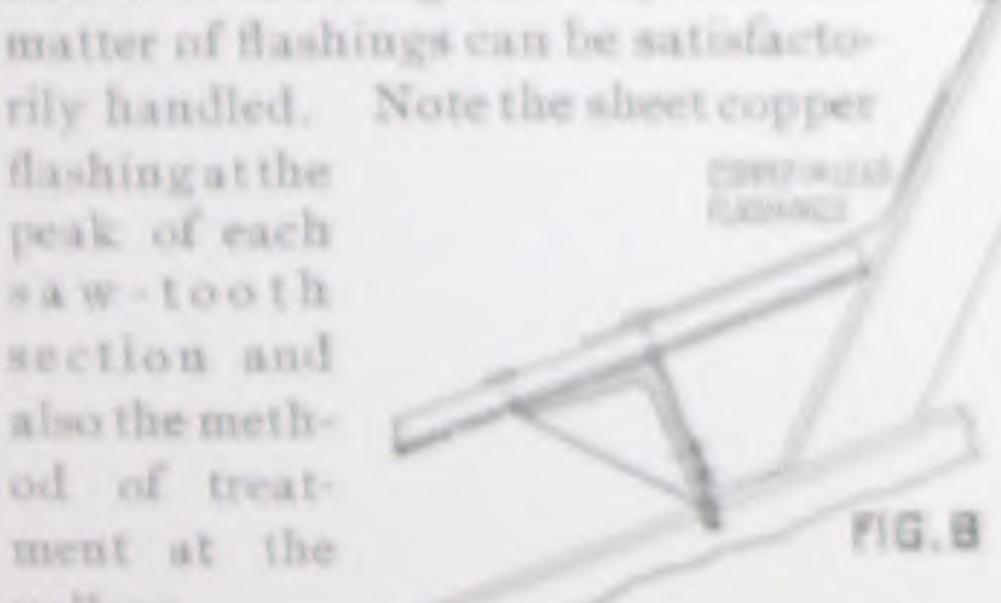
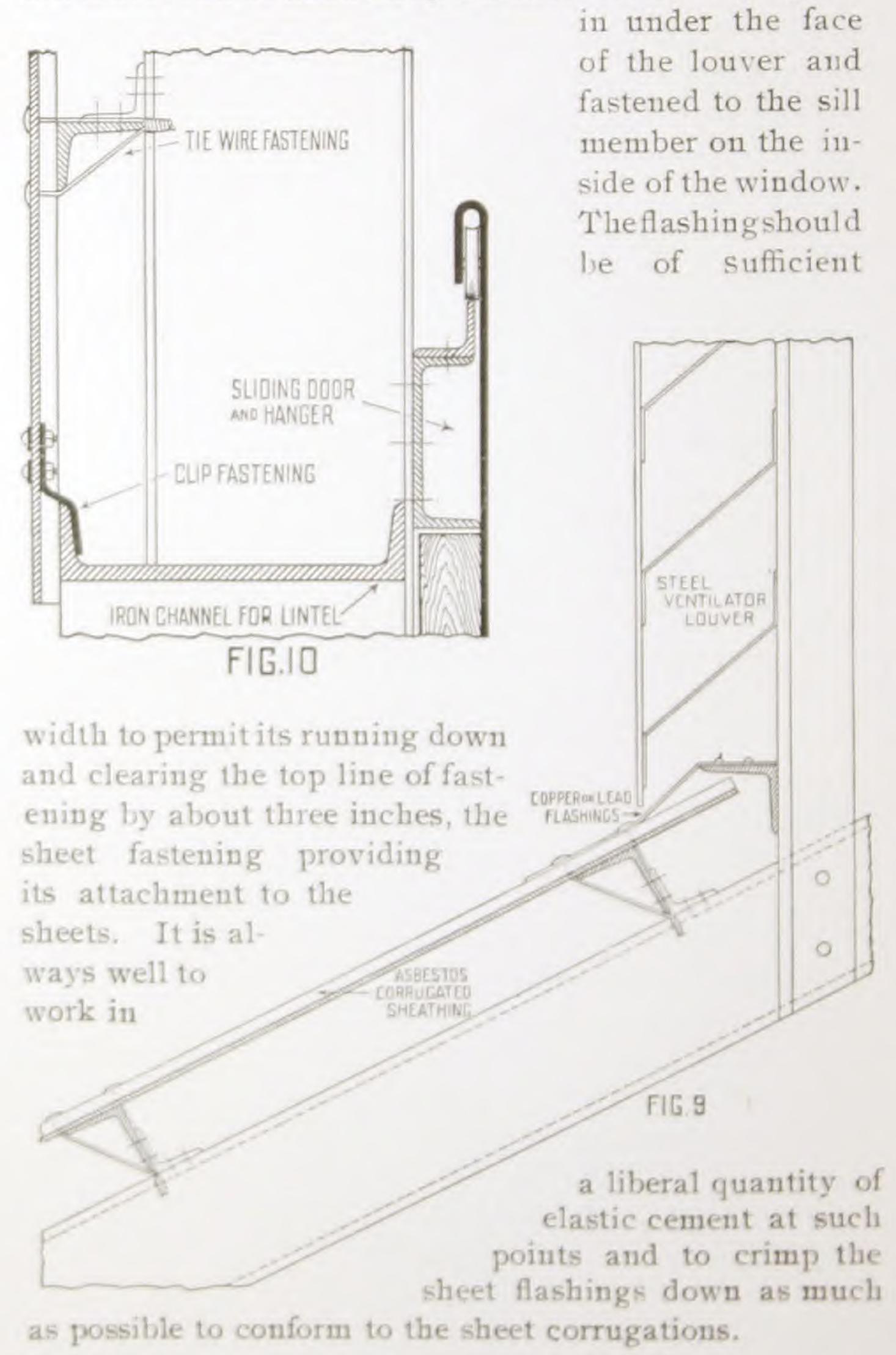


Fig. 9. shows one way in which the flashing of a lantern louver can be handled by a flexible metal flashing run



In working around window and door openings the sheets can either be brought right down to the face of the

ASBESTOS

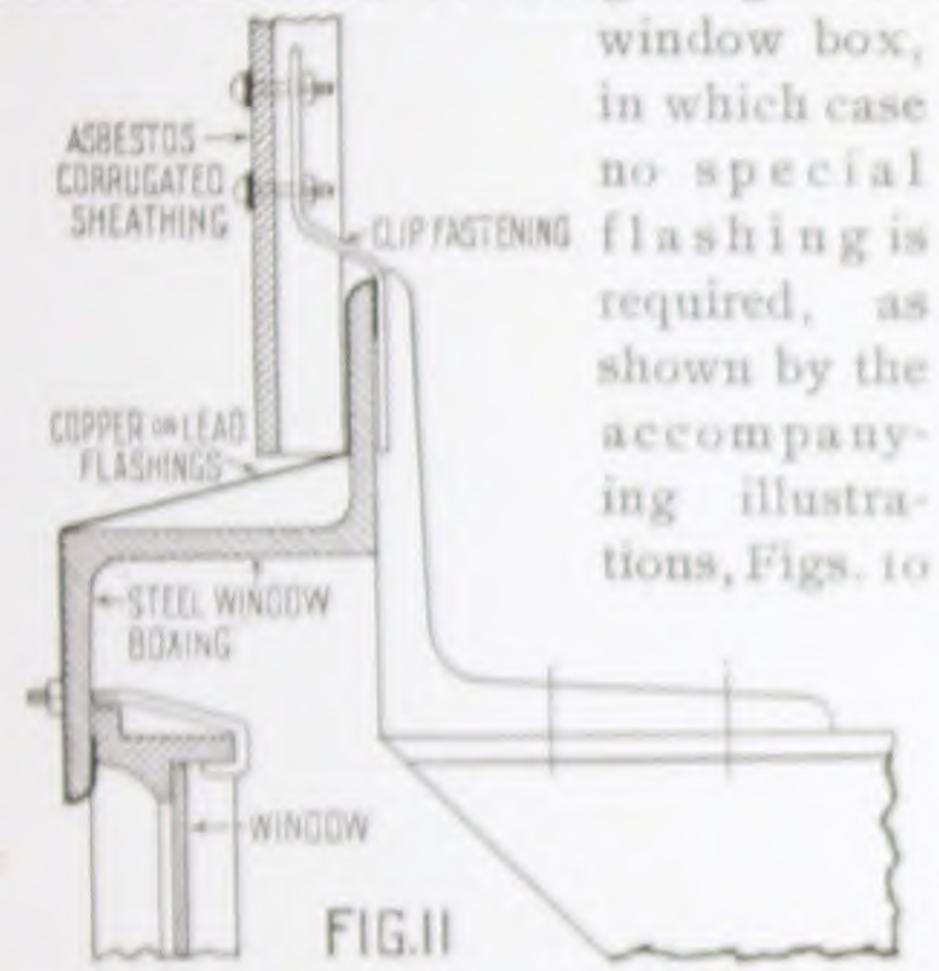
CURRUGATED

SHEATHING

RON CLIP

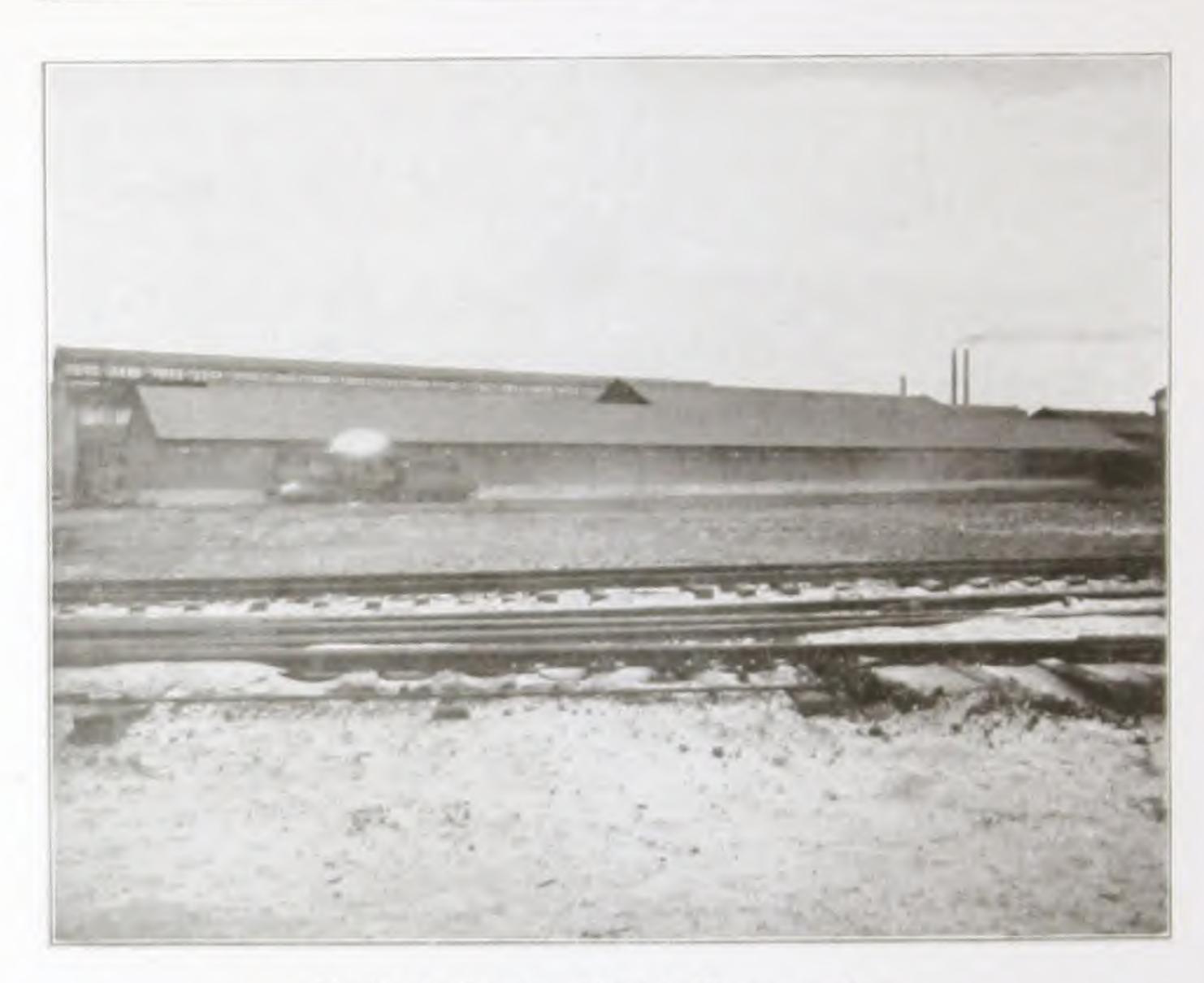
PASTENING

TABLE



and 12, or they can be brought up flush to the sash construction and flashed with metal as shown by Fig. 11. Again the window box may be constructed so the sheets may fit into the woodwork or ironwork, as the case may be; in other words, the box would be framed around the edge of the sheets. It is here that Asbestos Corrugated Sheathing has a marked advantage over corrugated iron, as it can be readily cut with a hack saw or ordinary carpenter's rip saw to fit

ordinary carpenter's rip saw to fit FIG.12 around any detail of construction, and the corrugations fit evenly one in the other, making an even, tight joint not always obtainable with corrugated iron, the corrugations of which will often flatten out and buckle, rendering it difficult to obtain a tight, even union of sheets, without riveting the laps at frequent intervals.



United States Steel Corporation Indiana Steel Company's Plant, Gary, Ind. Covered with Reinforced Asbestos Corrugated Sheathing.

EXPANSION

Where the sheets of Asbestos Corrugated Sheathing are applied to steel frame construction over large areas,

must be provided. This is particularly the case where the side laps of the sheets are rigidly bolted together with aluminum rivets or small stove bolts. This method is used not only with Asbestos Corrugated Sheathing but with corrugated iron as a provision against the "creeping" (contraction and expansion) of the steel superstructure. If this is not done where corrugated iron is used, it will flatten or buckle, and while this condition may at first not be discernible, the roof will very often leak at this point in a short time. With the Asbestos

Corrugated Sheathing, which cannot flattenout or buckle, a crack in the sheets will very naturally occur. This expansion joint may be of any type that the engineer may think best, either in the nature of a sheet lead joint or may be taken care of by simply putting in an extra sheet all the way down the roof with four or five corrugations extra lap loosely fastened with tie wires without bolting. The contraction and expansion of the steelwork on any building of size produces a stress or strain of considerable magnitude and one which no material can withstand if it is rigidly fastened to the members or fastened sheet to sheet. Expansion joints must therefore be used.

PRICE PER SQUARE FOOT F.O.B. WORK Asbestos Corrugated Sheathings, Newport Gray Color Hip or Ridge Roll, Newport Gray only, 2½" radius, 4" wing or apron, in lengths of 4' and 8', for use in connection with Asbestos Corrugated Sheathing	15c.
Same with 6" wing	al foot

SUNDRIES

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	inum ad he	-	Faster	iers, i	nade	of	No.	8 gaug	e r	vire	withco	nvex
	81/2"	per 1	hundre	ed \$.							1.10	
Lead	Wasl	iers.	I" dia	meter	. flat	. fe	or us	se wit	li i	tie-v	vire	
fa	asteni	ngs, p	per the	ousand	1							\$2.00
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3/16/1	diam	eter x	3/11	long	(375	to	the	pound	1)	per	pound	\$1.00
3/16/1	6.6	7	7/1	11	(330	14	4.6	41	1	4.1	10	1.00
3/16/1	14	3	TIM	10	(260	26	11	5.6	1	8.8	5.2	1.00
Alum	inum	Wash	ersfor	above	(400	er.	3.0	4.4	5	2.2	1.5	1.00

The aluminum rivets are generally employed where it is found desirable to fasten the laps of the sheets together in between the purlin fastenings, in which case, if the engineer desires, a small stove bolt can be used in place of the aluminum rivets; in fact, we think bolting the sheets together will be found more desirable and more easily accomplished than riveting. Any small stove bolt obtainable in the open market will be suitable for the purpose.

The Asbestos Corrugated Sheathing must be crated in small quantities and charges will be made for same, the following being the average schedule for the size, weight and cost of these crates:

ASBESTOS CORRUGATED SHEATHING

Packed in Crates

Number Sheets per Crate	Size of Sheets	Approxi- mate Cost of Crate
24	2736" × 48" × 3/16"	\$,80
200	$2735'' \times 60'' \times 3/10''$.85
3.01	2735" × 72" × 3/16"	.80
14	2734" × 84" × 3/16"	.80
12	27 1/2" × 96" × 3/16"	.90
10	2735" × 108" × 3/16"	1.00
10	2736" × 120" × 3/16"	I.To

Where the shipment is of considerable size (from eight to ten thousand pounds or more) we can send the car directly through without transfer, and in this case it is not necessary to crate the material; we can simply brace it in the car, making a nominal charge for bracing of about \$5.00 for the entire shipment. If the quantity totals a carload we brace it in the car, but make no charge to the purchaser for the cost of bracing. Otherwise a charge will be made for casing.

Asbestos Corrugated Sheathing

Actual square foot area for various stock size sheets, based on a factor of 2,2916 square feet per lineal foot of material:

I	sheet	4	ft.		9.1666	sq. ft.
1	4.4	5	6.5		11.4583	1.1
I	1.6	6				4.6
1	4.6	7	4.6			4-4
1	6.6	8	44	***********	18.3333	4.6
I	6.6	9		**********	- Aug	
I	6.6	10				

Asbestos Building Lumber

For wainscoting depots, waiting rooms, toilet-rooms, kitchens, laundries, halls, etc. Applied either upon studding or sheathing. Neater, cleaner, more attractive, more satisfactory in every way, than either wood or sheet metal construction.

Requires No Paint Can be Scrubbed Does not Crack

Vermin-Proof Fireproof

Easily, Quickly and Cheaply Applied

Standard sizes of sheets, 42 in. x 48 in. and 42 in. x 96 in.; 1/8 in. to 5/8 in. thick. Color, Newport Gray.

Price Per Square Fo	et, F. O. B. Factory
1/8 inch thick 10c. sq. ft.	Approx. Wt. 1/3 lbs. sq. ft.
3-16 inch thick 15c. sq. ft.	Approx. Wt. 2 lbs sq. ft.
1/4 inch thick 20c. sq. ft.	Approx. Wt. 2% lbs. sq. ft.
3/3 inch thick 3oc. sq. ft.	Approx. Wt. 4 lbs. sq. ft.
7-16 inch thick 35c, sq. ft.	Approx. Wt. 433 lbs. sq. ft.
1/2 inch thick 40c. sq. ft.	Approx.Wt. 5/3 lbs. sq. ft.
5% inch thick soc. sq. ft.	Approx. Wt. 6% lbs. sq. ft.

Prices subject to liberal discount, which will be furnished on application.

Asbestos "Century" Shingles

Manufactured for the

Keasbey & Mattison Company

Factors

Ambler, Penna.

Information and Quotations furnished on request

Asbestos "Century" Shingles

Require No Paint Last Forever Light in Weight
FIREPROOF

Colors-Newport Gray, Indian Red, Blue-Black and Red Veneer

Asbestos 'Century' Shingles have been used on more than 30,000 buildings. Equally well adapted for the comparatively inexpensive dwelling or the pretentious country estate, these shingles have been extensively used by many Departments of the United States Government, several State governments, most of the larger corporations, and by thousands of individual contractors and owners. They may be successfully applied to the sides of a building as well as the roof, thus doing away with the need for painting.

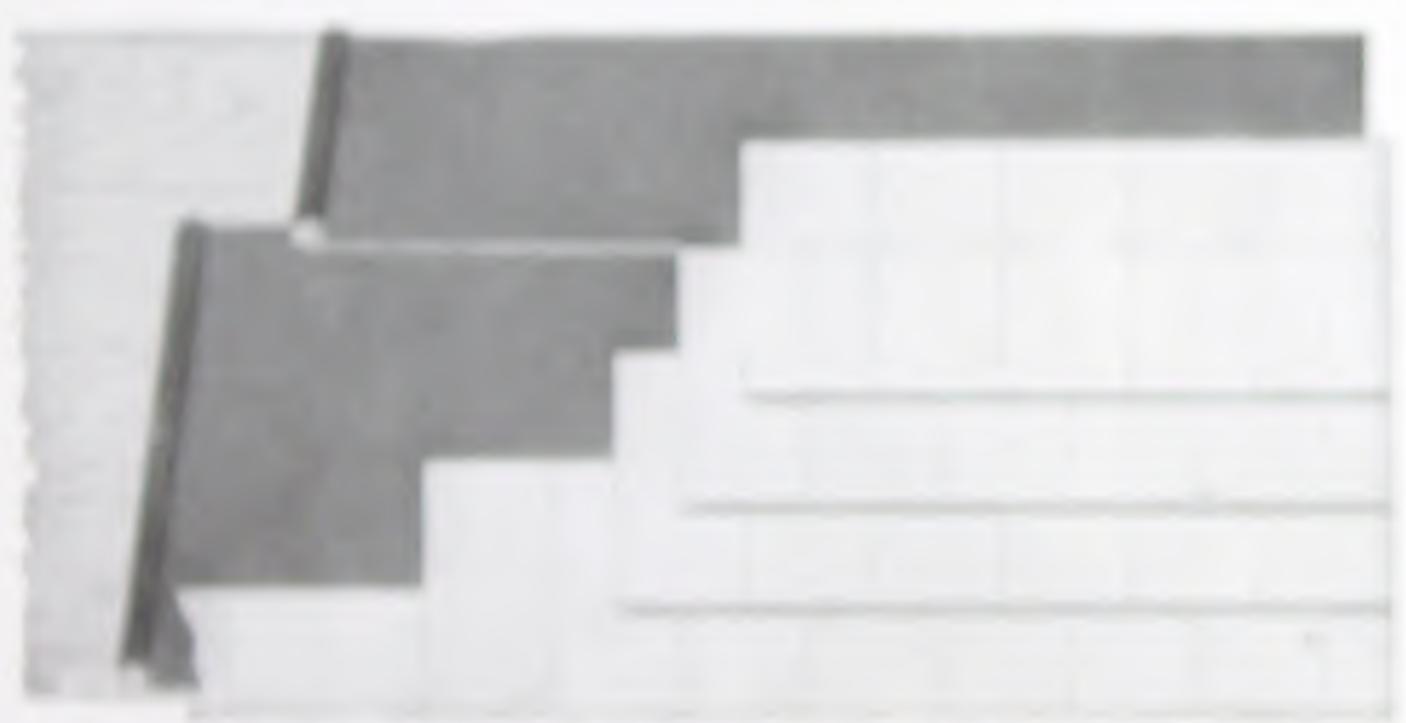
Just write us for booklet on "Roofing." It contains a lot of valuable information. Free for the asking.



Illustration showing the practical application of Asbestos "Century" Shingles (No. 3) on the roof, and Asbestos Building Lumber for siding, producing the popular and attractive Half Timber Effect. Applied either directly to the study or upon full wood sheathing. No metal lath required; no danger of hair cracks; fire, frost and vermin proof. Large sheets reduce the labor of application. Far superior to the usual plaster coat.



Historical of application, the "French" or diagrams partied of application, noing the No. 3, North parties.



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ASBESTOS CORRUGATED SHEATHING

Mode under Mutscheb's schword United States Letters Patent No. 12,500, Jan. 15, 1901

A Corrugated Sheet Concrete for Roofing purposes, composed of Hydraulic Cement and Asbestos Fibre



NO REPAIRS LASTS FOREVER

NEVER REQUIRES PAINT

NOT AFFECTED BY WEATHER CONDITIONS



KEASBEY & MATTISON COMPANY

FACTORS

AMBLER - PENNA.